

DECEMBER, 1935

# American FRUIT GROWER

THE NATIONAL FRUIT MAGAZINE

*In this Issue:*

**PEAR GROWING**  
on the  
Pacific Coast

•

**STRAWBERRIES**  
High Fertility Aids  
Control of Root Rot

•

**ROOTSTOCKS**  
for Fruit Trees

•

**Pictorial Review**  
of the  
**FRUIT WORLD**

•

**Who's Who in**  
**Pomology**  
**ILLINOIS**

•

ALSO

Calendar of Coming Fruit  
Meetings and Exhibits

American Pomology

Nationwide News

State Horticultural News

Nut Growers' Column



MERRY CHRISTMAS! HAVE A STARKING

# JOIN UP!

## WITH THE COUNTRYWIDE CAMPAIGN IN BEHALF OF KING APPLE

To place the apple foremost in the fruit diet of Mr. and Mrs. American Citizen, and their children, by a countrywide campaign of education is the aim of the National Apple Institute. No position was ever more rightfully sought after, for King Apple is truly the champion—worthy of *Your* support through . . .

### INDIVIDUAL GROWER MEMBERSHIP

Furtherance of such an aim must be wholeheartedly supported by individual growers. Resources of the National Apple Institute are placed at the disposal of members. Experienced counsel is offered for problems of individual members. The consensus of opinion among progressive fruit producers is that people must be educated to the benefits of the apple, with consumer demand as the goal.

### STATE SOCIETY MEMBERSHIP

The nationwide program of the Institute interlocks with that of local organizations, including the State Horticultural Societies. Many of the leading state societies are already co-operating members of the Institute. If your state society is not behind the Institute 100%, use your influence to bring this about. For attainment of the goal, every interested individual and group must be joined into a great body striving as one.

## NATIONAL APPLE INSTITUTE

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### IS DOING AND WILL DO FOR THE INDUSTRY

SEND  
PLAN OF  
MEMBERSHIP  
AND PROGRAM  
WITHOUT ANY  
OBLIGATION TO

Name .....

St. or R.F.D. ....

P. O. ....

State .....

Has placed interesting suggestions before millions of newspaper and magazine readers. . . . Contacts Home Economics Departments of schools, colleges and associations to promote use of apples. . . . Has enlisted the support of 15,000 trained workers who are members of the American Home Economics Association. . . . Contacts commercial users of apples, such as restaurant men, pie bakers, etc. . . . Develops plans for local apple exhibits and shows. . . . Is establishing Department of Home Economics in which to test new recipes and improve on old methods of cooking apples.

# American FRUIT GROWER

DECEMBER Vol. 55

(Title Registered in U.S. Patent Office)

No. 12

1935

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DECEMBER, 1935

AMERICAN FRUIT GROWER

PAGE 3

## A WREATH OF FRIENDS

OUT of all the holidays, Christmas is the one which should lie closest to the heart of every fruit grower. Not alone for the day's religious significance; not alone because it is a day of feasting and festivity, in which fruit of many kinds plays a welcome part, but more because Christmas is the day dedicated to family and to friends. Now, as at no other season, we turn aside from the company of strangers and seek those who are close and dear and understanding. In the midst of our friends we renew our faith and hopes and aspirations.

And since fruit growers in all parts of the country have, and should have so much in common; since through neighborhood groups and associations, through state societies and experiment stations and through national organizations the handclasp of friendship and help is extended to one and all, AMERICAN FRUIT GROWER, in turn, can think of no more appropriate a message for the Christmas season than to wish for each and every one of its readers—

A Wreath of Friends



*The*  
**CAMERA PRESENTS**  
**A PICTORIAL REVIEW**  
of the  
**FRUIT**  
**WORLD**



The coronation of Harry W. Miller as the 1935 Apple King of West Virginia. Governor H. G. Kump of West Virginia, is placing the crown, with Mary Osborne as crown-bearer.



This huge apple tree is located at Oak Hill, Pa., and has a trunk circumference of almost 14 feet.

Top—Pruning time is here and these workers are using the three types of pruning equipment, hand-shears, saw and pole-shears in their trimming work.

## SEND IN YOUR BEST PICTURES

In your collection of snapshots you probably have photographs of scenes about the orchard or fruit farm that are of interest and perhaps some that are unusual. Pick out your best photographs and negatives and send them to AMERICAN FRUIT GROWER, 1370 Ontario St., Cleveland, Ohio. If you are not able to find the negative, send the photograph, but have the negative accompany the print if possible.

**ONE DOLLAR TO YOU FOR EACH ONE PUBLISHED**

A mature  
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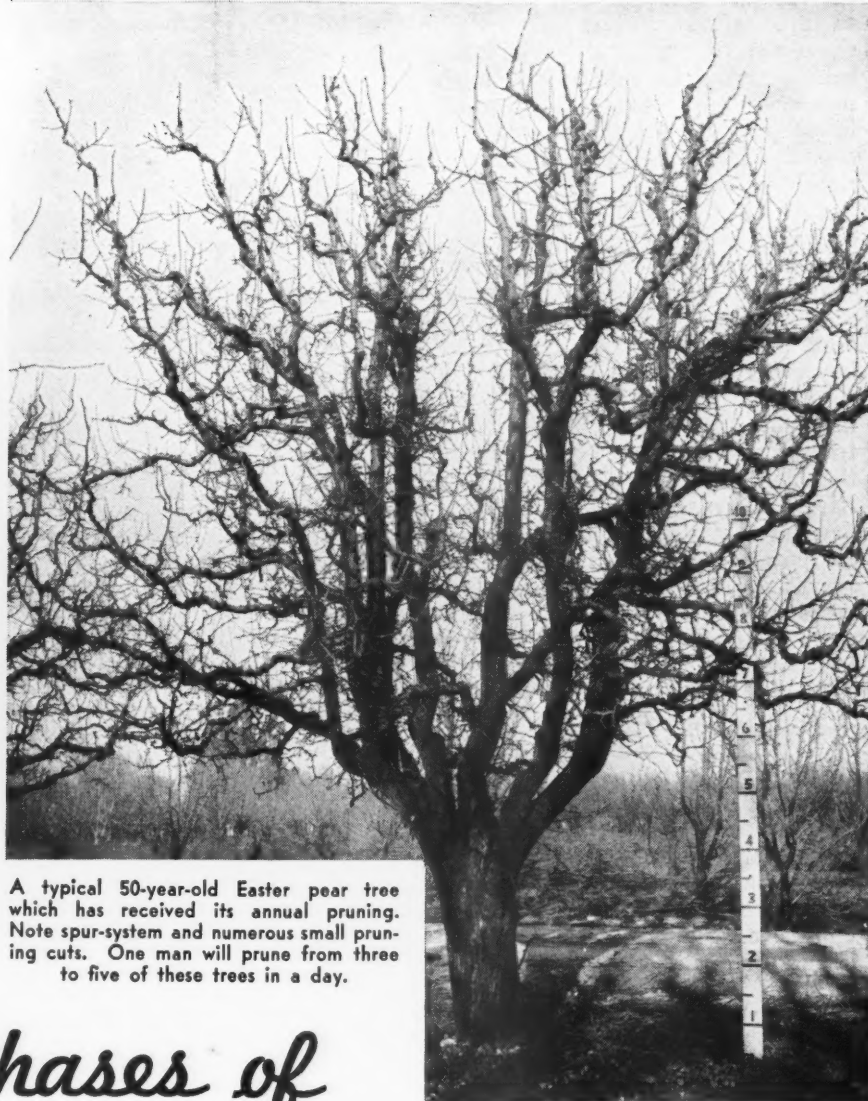
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DECEMBER,





A mature Hardy pear orchard in the Santa Clara Valley, California. Trees are planted 18 feet by the hexagonal system. This block has repeatedly yielded 45 tons of fruit per acre in a single season.



A typical 50-year-old Easter pear tree which has received its annual pruning. Note spur-system and numerous small pruning cuts. One man will prune from three to five of these trees in a day.

## Certain Phases of PEAR GROWING ON THE PACIFIC COAST

By WARREN P. TUFTS

University of California

THE world's pear acreage is approximately 1,680,000 acres—roughly one-fourth the apple acreage. France accounts for 24 per cent, United States 18 per cent, Germany 13 per cent, Japan 5 per cent and no other nation over 3 per cent. The annual production is about 150,000,000 bushels. During the three years 1928-1931, 7,000,000 bushels entered the world trade, United States furnishing 27 per cent, Belgium 24 per cent, Italy 13 per cent, Switzerland 10 per cent, Netherlands 11 per cent, France 11 per cent and all others 15 per cent. The French pear crop goes largely into cider (perry). The principal world markets (1928-1931) were the British Isles (32 per cent), Germany (31 per cent), Sweden (5 per cent), Canada, France, Switzerland, Netherlands and Denmark.

The production of the five foremost pear states, with the chief varieties, follows:

### Average Production of Pears 1929-1932, inclusive

United States.....	23,025,000 bushels
California .....	9,563,000 bushels—90% Bartlett
Washington .....	3,790,000 bushels—70% Bartlett —18% Winter Nelis
Oregon .....	2,680,000 bushels—40% Bartlett —20% Bosc —15% Anjou —15% Winter Nelis
New York .....	1,284,000 bushels—50% Kieffer —30% Bartlett
Michigan .....	543,000 bushels—50% Kieffer —30% Bartlett

Three Pacific Coast states, therefore, produce most of the United States pears. The amount marketed fresh is next indicated:

### Average Number of Carloads Shipped 1929-1932, inclusive

United States .....	23,617
California .....	10,941
Washington .....	5,180
Oregon .....	4,149

New York .....	1,407
Michigan .....	299

Since the usual carload is 520 bushel boxes (13 tons), California ships about 60 per cent of its production fresh, Washington 70 per cent and Oregon 80 per cent. Near centers of population, such calculations have little value, because of shipment by trucks. Of pears canned in the United States, 90 per cent (mostly Bartlett) are raised on the Pacific Coast. Some Kieffer pears are canned where raised. About 50 per cent of the canned product is exported, the British Isles, Canada and Cuba taking approximately 90 per cent of the total. From 10 per cent to 12 per cent of the California pear crop constitutes the entire annual dried pear production of the United States.

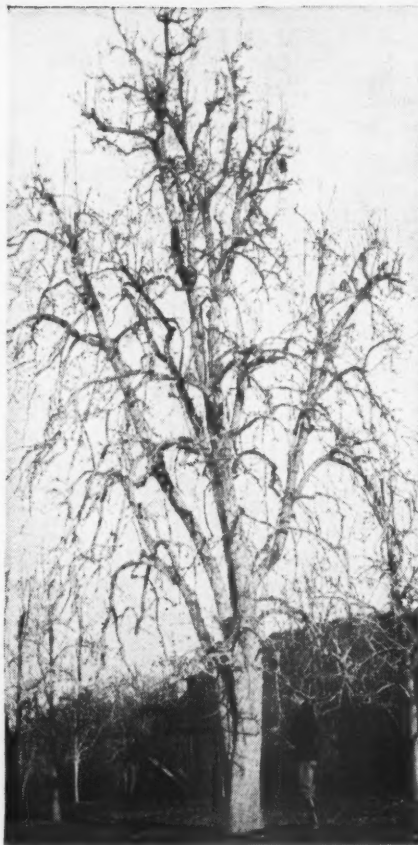
Washington grows pears chiefly in two districts. Of these, Yakima is far more important than Wenatchee, where few real pear orchards exist,

the tonnage coming mostly from small acreages or from pear trees scattered in apple orchards. The problems of the two sections are practically identical. Pear blight and codling moth menace profits, although the former has been less serious than farther south. Yields are satisfactory, sometimes reaching 20 tons per acre. Spring frost sometimes necessitates artificial heating. Winter injury, especially at lower levels, destroys some young trees. Because of the relatively long Bartlett fruit produced here, local and Puget Sound canneries buy much of the crop.

Oregon pears are produced primarily in the Rogue River Valley tributary to Medford, secondarily in the Umpqua, Willamette and Hood River valleys. This last, formerly devoted to apples, is now important for pears. Spring frosts, winter injury and limited areas adapted to pears will probably prevent much expansion. Bartlett, Bosc, Anjou, Winter Nelis, Howell and Comice are commonly grown. Medford produces a Bartlett adapted for shipping east or canning; also, an exceptionally fine Bosc, particularly on heavier soils. Because of late spring frosts, almost all pear orchards here have heating equipment. Blight sometimes materially reduces the crop and destroys trees. Irrigation water is relatively expensive. Shipment and storage facilities are excellent.

The California pear industry is dominated by Bartlett, constituting about 90 per cent of the acreage and production. Five important districts produce pears: the interior valleys, San Francisco Bay district and coastal counties, Sierra Nevada foothills, Lake and Mendocino counties and the Antelope Valley near the Mojave desert.

Early shipments originate in the



A mature Bartlett pear tree in Lake County, California. Several trees in this orchard have in some years produced a ton of fruit.

hot interior valleys, raising mostly Bartletts of fine carrying and canning quality, but some Hardy. The coastal counties, such as Santa Clara, produce Bartletts excellent for drying

A typical Sacramento delta Bartlett pear orchard. Note levee in right foreground. The top of this levee is approximately at the same level as the top of the trees. Trees have been allowed to reach a certain height and then annually cut back at this point, generally determined by what can be reached from the top of a 10 or 12-foot stepladder.

and canning, but less satisfactory for eastern shipments. Yields are splendid, Bartlett orchards often producing 30 tons of quality fruit annually, a few Hardy and Winter Nelis orchards up to 45 tons. The Santa Clara Valley produces as many fall and winter pears as the Medford district in Oregon. The Sierra Nevada foothills grow some winter pears, but mainly Bartlett, which ripen later than in the valleys. The Bartlett shipping season extends from about June 20 to September 20 of each year, depending on the district. In the coastal range, Lake and Mendocino counties are rapidly increasing their late season Bartletts; they now largely ship fresh or can, though Lake County formerly dried a considerable tonnage. From the Antelope district, late Bartlett pears are shipped to the Los Angeles market. Throughout California, pear blight is the outstanding single deterrent to an almost unlimited tonnage of fine quality. In the coastal counties, indeed, it is not serious; but there Bartlett growers have difficulty in securing sufficient length of fruit in relation to diameter; "short" pears are not desired for shipping, drying or canning. Overexpansion since the World War has increased tonnage and ruined prices.

In order of ripening, Pacific Coast commercial varieties are Early Wilder, Bartlett, Hardy, Howell, Bosc, Comice, Anjou, Winter Nelis, and Easter. Of these, Early Wilder and Howell, the only ones not of European origin, are least important. All the best varieties belong to the species *Pyrus communis* or European pear. The Japanese cultivate many varieties of *Pyrus serotina* or Japanese pear, not pleasing to the occidental palate. The Kieffer variety, widespread except on the Pacific Coast, is suppos-

(Continued on page 22)





An infected and a normal root system.  
Photo by E. P. Carter

## High Fertility



# AIDS CONTROL OF STRAWBERRY ROOT ROT

THAT strawberry plants are subject to root diseases has been observed for many years, and the problem has been the object of study among plant disease investigators in the United States, Canada and abroad. Recently the trouble has either become more severe, or the increased amount of study given it has focused the attention of both the investigator and the grower upon the problem. It holds much of interest both from the standpoint of crop losses and the complicated nature of the problem itself.

While most strawberry growers who have been troubled with root rots in their fields are probably well acquainted with the symptoms, it might be well to give a brief account of them. Ordinarily, the first notice of the trouble comes with the onset of warmer and drier weather in late spring or early summer, when the

By E. J. ANDERSON

Assistant in Plant Pathology  
University of Maryland

water requirements of the plants are increased as a result of enlarged leaf area, growing green fruits, and drier, warmer atmosphere. In severe infections, however, it may be noted as early as the time of first spring growth, when affected plants remain small and stunted or die. Badly infected plants fail to produce a normal crop, if, indeed, they survive until harvest. Foliage symptoms vary with the variety, environment and time of season. In early season in Maryland, the writer has been able to spot affected plants of the Premier variety by the grey-blue color on the leaves of such plants. Leaves of diseased

plants are frequently smaller in size, fewer in number, and tend to be edged with red or brown. Occasionally, the older leaves drop early. Death may come as quickly as if one had passed a sharp knife under the plant, severing the roots. A few plants, however, often remain even in a badly infected patch.

In speaking of strawberry roots, we might define our terms, not necessarily from a standpoint of morphological accuracy, but to give the reader an understanding of what follows. Root, as used herein, refers to the main roots of the plant, from which the lateral or feeding roots branch.

The chief root rot symptom can be seen upon removing the entire plant from the soil. One of two types of root rot, or both, may be present, both producing about the same foliage symptoms and having much the same effect in the field. The first type of rot is known as "black root" because its attack is first to be seen as a dark sunken area on or encircling the root. The black area may grow to include the entire root and spread to others. If the dark outer portion is scraped away, the woody central strand usually will be found still light in color and intact, although the smaller lateral roots may be decayed. This latter point distinguishes the much darkened diseased root from roots darkened normally by age. Healthy roots which have passed a dormant season darken naturally, but the fine lateral roots are not destroyed.

The second type of rot is known  
(Continued on page 20)



A planting partially destroyed by root rot.  
Photo by E. P. Carter



# AMERICAN POMOLOGY

*A Page Conducted in the Interests of the  
American Pomological Society*

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Edited by H. L. LANTZ, Secretary

## Some Accomplishments During 1935

**D**URING 1935 the American Pomological Society has made considerable progress along several lines. There has been fine cooperation between a number of the strongest state horticultural societies and the A.P.S. in the interests of fruit growers. Early in the year when it seemed necessary to take some definite action in regard to the lead residue situation, these societies used the A.P.S. as their spokesman in contacting the proper federal officials relative to policies in the lowering of the lead tolerance on apples. The conferences were successful in laying the fruit growers' case before government officials.

### National Apple Institute

The National Apple Institute, its purpose and method of operation have been reported upon in several issues of *AMERICAN FRUIT GROWER*. The Institute is doing good work in popularizing "King Apple" but needs more growers' support. Fruit growers have been asked to contribute to the fund, \$1 per 1,000 bushels of apples produced, in order to finance the work. Fruit growers who have not yet contributed, should, if possible to do so, send their remittances to H. D. Simpson, treasurer, National Apple Institute, Vincennes, Ind.

Needless to say, the success of this venture lies in the hands of fruit growers themselves. Apples need sound advertising to enable the industry to satisfactorily dispose of the crop. Consumers need to become more "apple conscious", and whose job is it, if not the producers, to make consumers more "apple conscious"?

### Committee Activities

Soon after the conferences in Washington, D. C., President Pickett asked a committee to work upon some phases of the lead residue problem which needed more study. Dr. W. A. Ruth, University of Illinois, was made chairman of the committee. The committee has been active, and will have a report of its findings to present in the near future.

The committee on nomenclature, headed by Dr. M. J. Dorsey, also of the University of Illinois, did a thoroughly good job of revising the Code of Nomenclature of the American Pomological Society. The revised code was submitted at the last convention at Grand Rapids and acted upon there. In view of the importance of some unfinished business in the code, the committee was retained for 1935 and asked to make a special study of a system of registering the names of new varieties of fruits. The importance of devising some system of recognized standing and authority whereby new fruit names may be registered is imperative in view of the fact that new fruit varieties are being introduced in consider-

able numbers each year. Without a system for registering new variety names, there is bound to be endless duplication of names, and likewise endless confusion in all branches of the trade, from nurseryman to consumer.

### Annual Report Published

The report of the 50th convention of the American Pomological Society, held in joint session with the Michigan State Horticultural Society at Grand Rapids, was published and mailed to the membership during the year. This report has been well received, and inquiries for it have been numerous.

### The Official News Organ

*AMERICAN FRUIT GROWER* has given fine cooperation throughout the year in respect to the activities of the American Pomological Society. Our page, "American Pomology," has appeared each month and has served to acquaint the readers of the magazine with the general activities of the society. Your secretary needs some assistance, however, and would heartily welcome contributions from our readers. If you have had some interesting experiences with new varieties, or in any branch of fruit growing which you consider of general interest to fruit growers, won't you send them to us? We need your ideas and your help in conducting this page.

### Memberships

Members enrolled in larger numbers this year than last. We need more members. A larger membership means a more effective A.P.S. And remember, the A.P.S. is the only national organization of its kind in the United States. It has the prestige to help fruit growers with national problems where concerted action is needed; but it must have your sympathy, your friendship and you, as an individual, enrolled on its membership lists.

### Notes on New Fruits

New fruit varieties of practically all kinds make their bid for fame at harvest time. After all, the fruit itself tells the story. This year many new fruit varieties have passed through another trial season. Some of the newcomers are destined to fame, others to oblivion. Shortly after the first of July the writer saw a magnificent crop of the Newburg raspberry, an origination of the New York Agricultural Experiment Station, growing on the horticultural experimental plots of the Oregon Experiment Station at Corvallis. Never have I seen raspberries so profusely borne, nor of any finer quality. Another plot was planted

to the Youngberry (a giant among the blackberries). The Youngberry produces fruits of immense size, dark shiny black, very fleshy and sweet in flavor. The Youngberry is not adapted to cold climates, but where it grows well it is a winner.

The Taylor is another new red raspberry of exceptional size and high quality. It was originated, named and introduced by the New York station. The New York station also has an everbearing raspberry which is very productive and of excellent quality. This berry still goes under a number, but several observers who have seen this berry "in action" predict that it will be a winner.

This year the Cortland apple finished up with large size, deep red color and excellent quality in several eastern Iowa orchards. In central Iowa it fails to attain size, but seems to be at home on the loess soils of the eastern part of the state. Cortland is gaining favor in New York and other eastern states. Kendall, a more recent introduction (a cross of the McIntosh), is creating a sensation on account of its production, size, red color and high quality. Orleans, a seedling of Delicious, is also getting favorable comment. The New York station has done and still is doing great work for the fruit industry.

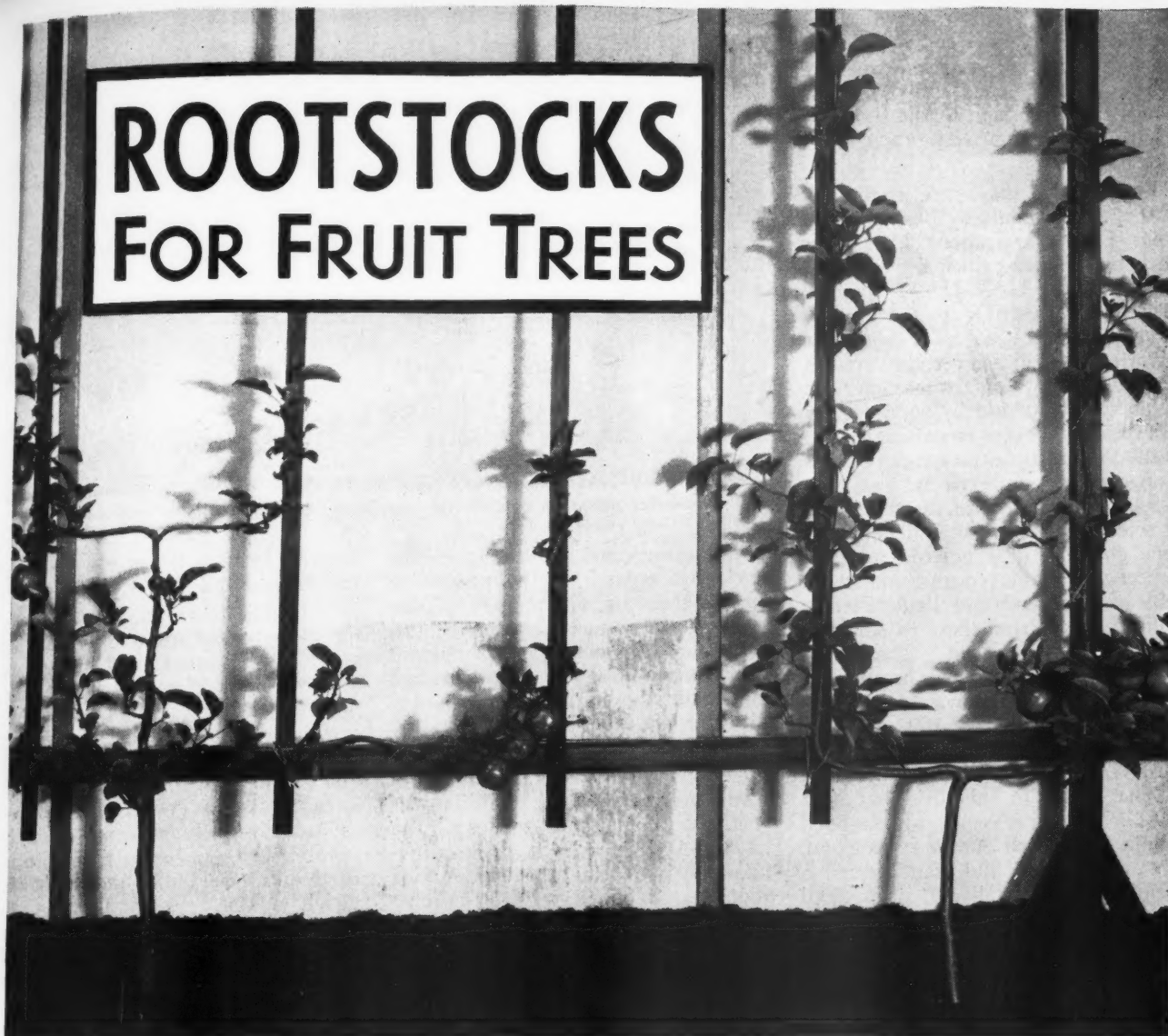
In the Middle West, new apples are being given widespread trial. The Sharon, a seedling of McIntosh x Longfield, is an excellent apple and is being well received where it has come into fruiting. In some locations it fails to develop good red color, but its dessert quality appeals to most folks. The Secor is an apple of exceptionally high quality when well grown. It is a seedling of Salome x Jonathan, is productive, medium red in color, keeps two months longer than Jonathan and is free from Jonathan spot. Joan is a sensation for large size and its beautiful full red color. Its parentage is Anisim x Jonathan, it is regularly productive, ripens in November but if placed in cold storage promptly, keeps longer. Sharon, Secor and Joan were all developed by the Iowa Agricultural Experiment Station at Ames.

For the colder parts of the Upper Mississippi Valley region, the Haralson has proved to be hardy and productive and is a late winter apple. This valuable apple was introduced by the University of Minnesota Fruit Breeding Farm. I understand that six new varieties of apples originated at the Missouri Fruit Experiment Station at Mountain Grove are to be named and introduced soon.

To mention the many more new apples which have been introduced for trial would make too long a story. We are all, however, interested in these newly introduced varieties, and realize that only a few of them will rise to the heights. Widespread tests soon sort the fit from the unfit. Few growers make the mistake of planting new fruits on an extensive scale before they

(Continued on page 17)

# ROOTSTOCKS FOR FRUIT TREES



Trained dwarf trees growing on vegetatively propagated dwarfing rootstocks.

## PART II

By H. B. TUKEY

Chief in Research, New York State  
Agricultural Experiment Station

In the first installment of this article Dr. Tukey described the sources of rootstocks and explained the specific problems of the various sections of the country as to their needs pertaining to rootstocks.—*Editor*

**W**HAT is the possibility for improvement of seedling rootstocks? First of all, since nurserymen are compelled to depend upon seedling rootstocks for immediate supply, improvement must be sought first in the seedling line. As seedling producers and nurserymen turn to a domestic supply of seed, as they are doing, something can be done to guide in the selection of seed. It is found, for example, that seed of Baldwin, R. I. Greening, Tompkins King and Gravenstein is almost worthless from which to produce apple rootstocks. On the other hand, seed of Whitney, Ben Davis, Rome, McIntosh, Delicious, Winesap and Wealthy produces quite satisfactory seedling rootstocks. Likewise for the pear, seed from Bartlett and from Winter Nelis is good. For the

cherry, early-ripening varieties have proved worthless or inferior, while such late-ripening kinds as Black Republican, Oswego and Downer have produced good seedlings. Dr. R. D. Anthony of Pennsylvania reports native Mazzard and Mahaleb seed supply to give superior rootstocks. For the peach, Elberta seed has been deemed inferior, whereas seed of Chili, Crosby, Muir, and Lovett has proved satisfactory, and seed of some of the Honey peaches seems likely to be quite superior.

Yet in any seed supply of this kind, unless certain varieties are interplanted, only one of the parents is known. There is room for improving the seed supply by making known crosses between two varieties or lines. Already Prof. T. J. Maney of the

Iowa Experiment Station has shown some splendid results from this attack upon the problem. By crossing certain varieties of apples, he has produced seedling rootstocks which are remarkable for their uniformity and for the vigor of the resulting trees propagated upon them.

Furthermore, there is no limit to the possibilities yet untried in the seedling line, whether as known crosses or otherwise. Little by little new species and varieties are being tried as seed supplies. Why can seedling rootstocks not be bred by modern plant breeding methods? Why can not pure lines of seedlings be obtained? Already what looks like a pure line of Mazzard has been found. There are those who feel that to meet the problems of the immediate future, the chances are greatest by this method.

But seedlings are variable at best, and the breeding of pure lines or of special rootstocks is a long-time venture. Besides, seedling rootstocks do not give the answer to some of the demands for improved rootstocks, such as a dwarfing rootstock and a



rootstock of uniform characters. To meet this need, rootstocks must be produced by layers or cuttings so that all individuals in a given line are identical one to another. And this brings the discussion to the so-called "clonal" or "vegetatively propagated" rootstock.

Fortunately, there are rootstocks of this type available. Besides those from Europe, selections have been made in America principally by G. E. Yerkes of the U. S. D. A. Just as certain varieties of apples are characterized by the color or shape or flavor of the fruit, so certain varieties may be found which are characterized by an ability to root by such vegetative means as layers or cuttings. Up to the present time, rootstocks of this type can be numbered in less than 100, as compared with the thousands of scion varieties now available. As time goes on, it is not too much to expect that many types of rootstocks will be produced and that selection will be made from these to suit certain varieties of fruit. That is to say, in the future it may be that the McIntosh will be grown upon, let us say, Rootstock No. 109, whereas Rome Beauty will be propagated on No. 84.

The leader in this field has been R. G. Hatton, director of the East Malling Research Station in England. He has selected and standardized a number of vegetatively propagated rootstocks and has put them into commercial production and into commercial orchards. His success has been so striking that American fruit growers and horticulturists have become greatly interested in the possibility of these stocks for American conditions.

It is claimed for these rootstocks that they are more uniform than seedlings. That this is true for the commercial orchard section in England where they have been used, there can be no question. Anyone who has



Mother plantation of clonal or vegetatively propagated apple rootstocks.

seen the variation in seedling rootstocks in England and the uniformity of the trees on vegetatively propagated stocks cannot help but be impressed. The fact that commercial fruit men in England seem satisfied that these stocks are an improvement speaks for itself.

But while theoretically these stocks should be assumed to be more uniform under American conditions, as well, American fruit growers who have looked down long rows of remarkably uniform trees on seedling rootstocks in the major fruit-producing sections of America are inclined to ask to see something better before they can be convinced that they should try something else. And so one of the major tasks ahead of research institutions in the country today is to try varieties on these rootstocks in comparison with seedling rootstocks. Only in this way will the

Ideal commercial English apple trees slightly dwarfed on vegetatively propagated rootstocks. Director R. G. Hatton at left.



correct answer be given—and this means time and money.

Yet while there may be those who question the greater uniformity of vegetatively propagated rootstocks under American conditions, it cannot be denied that this type rootstock has certain definite advantages in meeting particular problems. Just as Delicious apple foliage seems particularly attractive to the red spider, and just as McIntosh foliage seems especially susceptible to apple scab, just so in time there will be found rootstocks which will be resistant to this or to that misfortune or which will be particularly adapted to certain soil types or certain varieties. When these are found, and if they can be propagated vegetatively, it will mean that that particular problem is solved because quantities of that rootstock can be propagated identical in all respects to the original specimen.

This is one of the reasons that forward-looking individuals are so much interested in vegetatively propagated rootstocks.

Still another reason for interest in vegetative stocks lies in the effect of such stocks upon the size and the fruiting of trees worked upon them. Certain of the English stocks are decidedly dwarfing, others are less dwarfing, and some are scarcely if at all dwarfing. This means that in the fight for insect and disease control and in the problem of better color and smaller size of tree, varying degrees of dwarfness can be produced and that these degrees of dwarfing will be uniform for a given variety and a given rootstock.

It will be recalled that dwarfing rootstocks for fruit trees in America have had a very bad reputation. This has been in part because these dwarfing rootstocks were not standardized. Still another reason is that they were the most dwarfing types that had yet been discovered. They have been thought of mostly as useful for the

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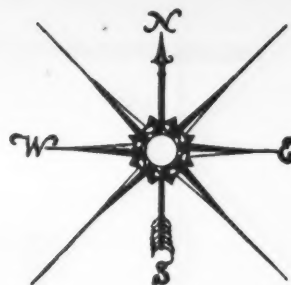
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# STATE HORTICULTURAL NEWS



## Missouri Valley Apple Exposition

THE Missouri Valley Apple Exposition was held in the Auditorium at St. Joseph, Mo., December 3, 4 and 5. This convention, held this year for the first time, was sponsored by the state horticultural societies of Missouri, Kansas, Nebraska and Iowa, in co-operation with the Missouri River Apple Growers and the St. Joseph Chamber of Commerce. Over \$500 were offered as prizes for apples.

Extensive exhibits of fruits were arranged and a series of educational programs planned for fruit growers. Competition of fruit was open only to apples grown in Missouri, Kansas, Nebraska and Iowa. An Intercollegiate Apple Judging Contest, however, was national in scope, and teams from other recognized departments of horticulture participated.

Among the prominent horticulturists who appeared on the various programs were Dr. J. R. Magness, chief pomologist of the U.S.D.A., Washington, D. C.; Prof. V. R. Gardner, director of the Michigan Agricultural Experiment Station, East Lansing; and Dr. L. A. Wheeler, director of Foreign Agricultural Service Division, U.S.D.A., Washington, D.C.

Outstanding state horticulturists who spoke were Dr. B. S. Pickett, president of the American Pomological Society and professor of horticulture at Iowa State College; Dr. C. C. Wiggins, professor of horticulture at the University of Nebraska; and Dr. R. J. Barnett, professor of horticulture at Kansas State College. Important laymen speakers were President F. A. Middlebush, University of Missouri, and Hon. Josh Lee, humorist and United States congressman from Oklahoma.

"The largest and best apple show ever held in the Middle West" was the opinion of the executive committee. This committee was composed of A. L. O'Connor and G. W. Hunt of St. Joseph, George T. Groh of Wathena, Kans., and H. C. Hitz of Oregon, Mo.

The program committee included the secretaries of the four co-operating state horticultural societies, R. S. Herrick of Des Moines, Ia.; E. H. Hoppert of Lincoln, Nebr.; George W. Kinkead of Topeka, Kans.; and W. R. Martin, Jr., of Columbia, Mo.

W. R. MARTIN, JR., Sec'y.  
Missouri Horticultural Society, Columbia.

## North Carolina Walnuts

BLACK walnuts, as a source of cash income, are bringing North Carolina farmers thousands of dollars each year.

Harvesting the annual crop, which runs into hundreds of thousands of bushels in this state alone, is now an important industry, according to R. W. Graeber, extension forester at North Carolina State College.

Only a few years ago great quantities of the nuts were allowed to waste, but

now they are being sold in the shell and as cracked kernels in grocery, candy and drug stores almost everywhere.

In Yadkin County, where walnut cracking has become a community enterprise, one farmer reported the sale of 16 barrels of kernels during the past season. A superior court judge in Davidson County got 23 bushels of nuts from one tree, and a farmer in Alleghany County sold \$300 worth of nuts from his farm in one year.

This is only an indication of the walnut business in North Carolina, Graeber said. One farm co-operative organization bought 90,000 pounds of nuts last year.

## Federal Orchard Culling

IN order to make jobs for needy people and also to reduce the fruit insect and disease hazards, the State of California will receive approximately \$2,000,000 for removing marginal and abandoned orchards and vineyards. Present plans call for removal of the abandoned orchards first, but marginal tracts will be considered by the Federal Government when they are submitted for consideration by the owner. There is no payment for the trees and vines removed.

## Quaker State News

THE 1936 winter meeting of the Pennsylvania State Horticultural Association will be held at Harrisburg in conjunction with the Pennsylvania Farm Products Show on Monday and Tuesday, January 20 and 21. The program will include growers' experiences and question box periods under the direction of S. W. Fletcher. Guest speakers will be a Penn State graduate, W. Dale Hilbish, fruit grower, Painesville, Ohio; Dr. D. F. Fisher, U.S.D.A.; Dr. P. D. Peterson, plant pathologist, Freeport Sulphur Company, New York City; Dr. E. F. Phillips, apiarist, Cornell University; M. V. Bailey, northern agriculturist, American Cyanamid Company; J. M. Horner, Portland Cement Association; and J. T. Bregger, Soil Conservation Service.

### Thayer Up

Paul Thayer, Carlisle, former extension pomologist, and now a successful fruit grower and member of this association, was one of three appointees of Governor Earle to the Farm Products Show Commission. Mr. Thayer has been on our State Farm Show and Exhibition Committee for some time. Members of this association have much cause to be gratified at this wise selection, as it is a case of the right man in the right place.

### Fire!

Fire during the night of October 10 totally destroyed the bank barn at the Hiester Farm of the college orchards. All spraying and dusting equipment, two tractors, all cultivation tools and considerable alfalfa hay, wheat and oats were destroyed, although the live stock was rescued. Good luck and hard work by the local fire com-

pany saved the fruit packing shed, which was ignited several times. The cold storage was not affected. Business was conducted in the orchards just as usual on the following day. The barn and its contents were fully insured. Nothing was lost which was required to handle the crop.

## Junior Speaking Contest

Dr. S. W. Fletcher, State College, will post annually a prize of \$25 for the best five-minute talk by a junior on a horticultural topic, preferably drawn from their own experience. The plans for handling this are being considered, although we will not be able to draw junior speakers at Harrisburg from this group until 1937. The association will probably offer other prizes. This is a practical reply to the justified criticism that we were doing nothing to interest boys and girls in fruit growing.

## Hartford Exhibit

In the September News Letter, a plea was made for fruit and money to stage the Pennsylvania exhibit at Hartford in December. None of either has been received and unless some very tangible and definite support is furnished, we cannot participate at all in that affair.

## Progressive Advertising Ideas

Herman Haase, R. D. 1, Narrowsburg, N. Y., but with orchards in Pennsylvania, does not believe in wasting the unused side of his business envelopes; on them he prints an excellent road map of his area of Wayne County. This undoubtedly saves him much correspondence in explaining to customers where he is located.

The Fruit Growers' Association of Adams County, R. M. Eldon, Aspers, secretary, also shows considerable initiative in their distinctive envelope with a photograph of blossoming fruit trees on one end and their attractive illustrated invitation to see the Adams County orchards in bloom. The reverse of this sheet shows a road map of the county with the orchards "spotted" for the benefit of the visitors.

R. H. SUDDS, Sec'y,  
State College.

## New Hampshire Meeting Notes

SPEAKING before the 41st annual meeting of the New Hampshire Horticultural Society, E. J. Rasmussen, research horticulturist of the University of New Hampshire, stated that moderate amounts of nitrate fertilizers do not shorten the life of apples in storage. This idea of storage-life shortening, due to the use of nitrate fertilizers, has been a common belief in some sections. His statement was based on a review of investigations made in six states, Delaware, Maryland, Ohio, Washington, Iowa and New Hampshire. He also added that nitrogen applications combined with certain cultural practices, such as heavy pruning or irrigation, would tend to produce late-maturing

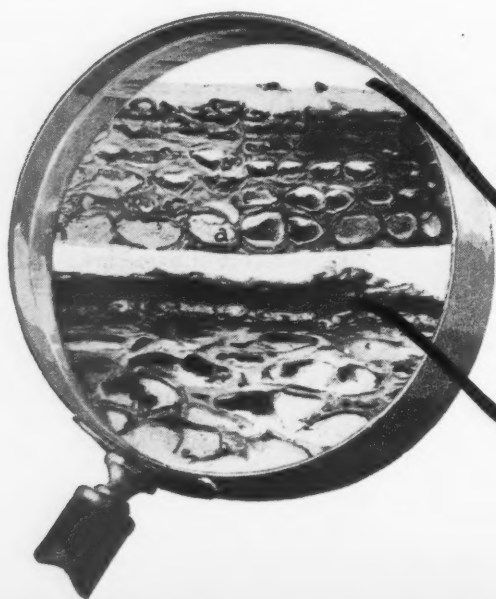
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# WHY LET RUSSET TURN YOUR CROP INTO CULLS

Thousands of bushels of apples during the past season went into the cull piles instead of into bushel baskets. WHY? Simply because russet caused by spraying with caustic Liquid Lime Sulfur ruined the finish and color of apples in many orchards.

Varieties like Jonathan, Grimes, Delicious, Golden Delicious, Baldwin, Stayman and Ben Davis which are susceptible to Liquid Lime Sulfur

russet represented the greatest loss. Experience has shown that Liquid Lime Sulfur can cause more dollars and cents loss to apple orchards than scab. Therefore, why take any more chances with this injurious spray material? Reduce the amount of culls in your apple crop next year...grow more A-Grade apples of fine color and finish by spraying with Sherwin-Williams Dry Lime Sulfur.



## *See* FOR YOURSELF WHAT RUSSET DOES

This is an actual microscopic cross-section photograph showing the skin of an apple with fine smooth finish. Note the smooth unbroken top layer showing the skin of the apple. S-W DRY LIME SULFUR will produce this fine smooth finish.

An actual microscopic cross-section photograph showing the corky skin tissue caused by russet. Note the dark corky layer showing how russet ruins the smooth skin of the apple. Caustic Liquid Lime Sulfur will cause this corky skin tissue known as russet.

# SHERWIN-WILLIAMS

## SPRAY AND DUST MATERIALS

# WHEN THIS SPRAYING SCHEDULE INSURES FINE COLOR • FINE FINISH

## AND TOP PRICES

The fact that Sherwin-Williams Dry Lime Sulfur is chemically pure 33° liquid lime sulfur **STABILIZED** makes it the most dependable and safest summer spray to use on apples. Follow the Sherwin-Williams New 1936 Apple Spraying Schedule and grow more apples with fine color and finish — avoid russet. Write for a copy of Sherwin-Williams No Russet — No Scab Spraying Schedule for apples.

**THE SHERWIN-WILLIAMS CO.**  
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# SHERWIN-WILLIAMS SPRAY AND DUST MATERIALS

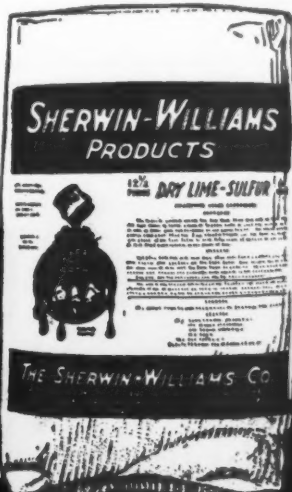
**THE SHERWIN-WILLIAMS CO.**

*New* **1936 APPLE SPRAYING SCHEDULE**

**NO RUSSET** **NO FOLIAGE INJURY** **NO SCAB**

SAN JOSE SCALE	DELAYED DORMANT	12 to 15 lbs. Dry Lime Sulfur
SCAB	CLUSTER-BUD OR PINK	3 lbs. Dry Lime Sulfur
SCAB	CALYX	2½ lbs. Dry Lime Sulfur and 2½ lbs. Hydrated Lime
SCAB	ONE WEEK TO 10 DAYS AFTER CALYX	2 lbs. Dry Lime Sulfur and 2½ lbs. Hydrated Lime
SCAB	THREE WEEKS AFTER CALYX	2 lbs. Dry Lime Sulfur and 2½ lbs. Hydrated Lime

THESE DILUTIONS ARE PER 50 GALLONS OF WATER.  
Add 1½ lbs. of Sherwin-Williams Arsenate of Lead to 50 gallons of water when necessary.



The Original Dry Lime Sulfur  
U. S. Patent No. 1264908,  
Jan. 29, 1918. Reissue Patent  
No. 14980, June 22, 1920.



# WHO'S WHO IN POMOLOGY • ILLINOIS •

Illinois was one of the veteran mid-western states in the establishment of a Department of Horticulture in its state university. The head of this department since the time of its inception has been the veteran horticultural educator, Dr. Joseph Cullen Blair. He went to the University of Illinois in 1896 as instructor in horticulture from Cornell, where he was graduated in the same year. At Cornell he majored in chemistry, entomology and horticulture. When the Department of Horticulture was formed in 1900, Dr. Blair was selected to head the department and has held this position since that time. Under his guidance the department now enjoys national and international renown. Dr. Blair is the author of several technical and popular articles and publications.

**College of Agriculture, the Agricultural Experiment Station, and the Agricultural Extension Service of the University of Illinois, Urbana.**

**H. W. Anderson, Ph.D.,** Professor and Chief in Pomological Pathology. Special attention in research given to fruit diseases and their control. Chief pomological pathologist of the University of Illinois for more than 18 years. Contributor on wide range of plant diseases. Author of articles on diseases of fruit crops, bacterial shot hole of peach, apple meagles and spraying and dusting of plants.

**A. B. Colby, Ph.D.,** Professor of Pomology, Chief in Small Fruit Culture since 1913. Special research work on small fruits, grape growing, protective measures for control of anthracnose and other diseases. Special attention to breeding of gooseberries, raspberries and strawberries. Contributor on many phases of small fruit problems.

**M. J. Dorsey, Ph.D.,** Professor and Chief in Pomology. Special work on sterility in fruits, hardiness, thinning, growth studies and orchard fertilization.

**W. P. Flint, B.S.,** Entomologist, Agricultural Experiment Station and State Natural History Survey. In charge of all work being carried on in state on control of insects. Special work in past years on codling moth control. Many contributions to the use of oil sprays on apples.

**K. J. Kadow, Ph.D.,** Associate Pathologist. Chief work deals with bramble diseases and vegetable diseases, especially those relating to northern part of state. Contribution on role of zinc sulphate in peach spraying.

**V. W. Kelley, Ph.D.,** Associate Professor of Horticulture Extension. Teacher, investigator and writer on many pomological subjects. Chief contributions in research regarding pruning of apples, physiological study of hardiness, thinning of fruits to improve quality.

**R. S. Marsh, A.M.,** Associate Professor and Associate Chief in Pomology. Chief research work deals with fertilizer experiments of orchard crops.

**R. L. McMunn, M.S.,** Associate in Pomology. Teacher and investigator. Chief contributions on peach thinning and cherry root rot experiments. Tests conducted and reported on a large variety of fruits.

**W. A. Ruth, Ph.D.,** Professor and Chief in Pomological Physiology. For more than 20 years teacher and re-

search specialist in the University of Illinois. Special study on removal of spray residue from apples. Publication on pruning investigations of apples.

## State Horticultural Society

**G. F. Shoff, President,** Peoria. Grower and dealer in fruits and vegetables.

**G. Leslie Smith, Vice-President,** Rock Island. Graduate of the University of Illinois in 1914. Grower and dealer of fruits and vegetables.

**Joe B. Hale, Secretary,** Salem. Fruit grower.

**W. S. Perrine, Treasurer,** Centralia. Fruit grower, with orchards at Centralia and New Burnside. Member of Advisory Committee of Department of Horticulture, University of Illinois for 25 years.

## ROOTSTOCKS

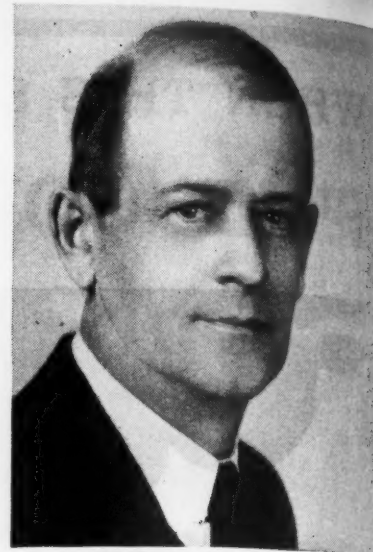
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amateur and home gardener who desires a dwarf or trained tree. That is to say, it was like comparing tall men with dwarfs and failing to recognize the great population of individuals between these two extremes. The new dwarfing stocks present a range of dwarfing from scarcely at all dwarfing to very dwarfing.

Is it possible that in some of the very slightly dwarfing stocks there may be found the answer to the problem of keeping trees in hand? Will some of these stocks be found which will keep Baldwin apple trees a reasonable height, yet without dwarfing them excessively? Will some of these stocks make it possible to grow slightly smaller and somewhat closer planted apple trees, well-rooted, hardy and long-lived, yet more easily protected from insect and disease attack, more easily pruned, more easily harvested?

These are some of the problems that are engaging the attention of a great many workers in America today and which are worth keeping an eye upon as they move along towards solution, as they surely will.

AMERICAN FRUIT GROWER



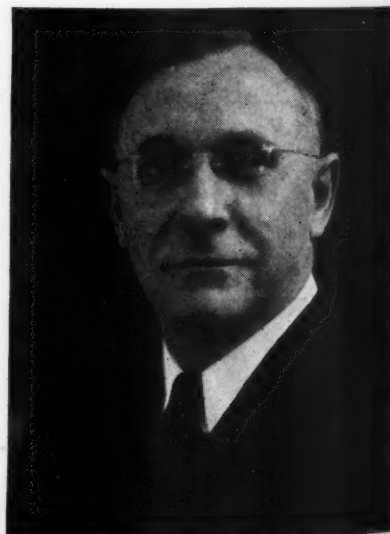
H. R. Letcher, President

## NEW HEADS OF THE HARDIE COMPANY

**FOLLOWING** the recent death of H. H. Hardie, for many years a dominant figure in the spray equipment industry, the men shown here have been chosen to take over the leadership of The Hardie Mfg. Co.

H. R. Letcher, who has seen long service with the company as vice-president in charge of the Pacific Coast division, becomes the president of the organization. He established the Portland branch of the company 27 years ago and in 1917 set up the Los Angeles branch, which is now in charge of R. J. Smith. Mr. Letcher states that there will be no change in the business policies of the company, which has held to progressive practices under the late Mr. Hardie.

With 27 years of experience in the offices and factory of the company to his credit, Perrine Lautzenheiser, better known as "Bud" to his associates and friends in the fruit industry, now is vice-president and general manager of the organization. Mr. Lautzenheiser has specialized in the engineering and production departments of the plant and is today one of the outstanding designers and builders of spray equipment.



P. Lautzenheiser, Vice President  
DECEMBER, 1931

## Nationwide News

Data contained in a report of costs compiled by the market expansion department of the Mutual Orange Distributors show that the total cultural costs of the California citrus grower in 1933 averaged \$152 per acre for Navel oranges and \$148 for Valencias. Costs in 1934 were slightly higher.

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Additional units are planned for the Martinsburg, W. Va., plant of the National Fruit Product Co., Inc., which will afford employment to approximately 300 to 400 persons during apple-processing season.

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The sun will have to find a new job—at least in California where the prune and apricot growers are now drying their product with natural gas. The change was made because of the rapid action of the artificial method as compared with the sun. The gas does the work in from 14 to 30 hours while Old Sol takes from 10 to 20 days.

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A strange, but effective, method of control was recommended during the past summer for webworms on pecan trees when Dr. E. W. Berger, of the Florida State Plant Board, advised the use of the shot gun. He said that the pecan grower, by using shells with fine shot, can rid his trees of webs which could not be reached by a torch or long pole.

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Growers in the Watsonville, Calif., area are advertising the idea of sending a box of apples to friends as Christmas gifts. The growers work with the Chamber of Commerce of the city and through newspapers and other advertising media they are contacting many persons in the locality. The Christmas gift idea for fruit is excellent for any fruit-producing section.

### Order Trees Early

**W**ARNINGS from many experiment stations and colleges in the various states have recently urged that those planning to plant fruit trees next year should place their orders with reliable nurserymen early.

During the depression little demand for trees was apparent and few trees were planted by the nurserymen. The severe winters hampered the production of the eastern nurserymen, and the drought was troublesome for the central and western growers of stock.

It is strongly suggested that growers deal with only reliable nurserymen. Some of the large nurseries have accredited salesmen in various sections and these representatives are reliable when working for a reliable firm.

DECEMBER, 1935



Above: A McCormick-Deering T-20 TracTracTor pulling and powering an orchard sprayer. The T-20 is a popular tractor wherever conditions call for a crawler tractor. Check into its unusual accessibility.

## Bring Your Power Problems to International Harvester

**INTERNATIONAL HARVESTER**—largest tractor builder in the world—has been in the orchard, vineyard, and farm power business for more than 30 years. Its engineering, manufacturing, distribution, and service policies are keyed to the needs of fruit growers and farmers.

If your work calls for crawler tractors, steel-wheeled tractors, pneumatic-tired tractors, or stationary power units, depend on the **McCORMICK-DEERING** line for the utmost satisfaction in performance and economy.

McCormick-Deering TracTracTors and Power Units are available with gasoline or Diesel engines. Of special interest to most fruit growers is the McCormick-Deering O-12—the little orchard and grove tractor that does big work on very little fuel.

Let the McCormick-Deering dealer or International Harvester branch work out your power problems. Write us for information.

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## McCORMICK-DEERING ORCHARD TRACTORS



## RENEW YOUR SUBSCRIPTION NOW! SAVE Money—Order at Low Cost Your Favorite Magazines

Offer No. 101  
AMERICAN FRUIT GROWER 1 yr. ALL  
Woman's World 1 yr. SIX  
Good Stories 1 yr. ONLY  
Home Circle 1 yr. \$1.00  
Illustrated Mechanics 1 yr.  
Mother's Home Life 1 yr.

Offer No. 102  
AMERICAN FRUIT GROWER 1 yr. ALL  
Household Magazine 1 yr. SIX  
Good Stories 1 yr. ONLY  
Gentlewoman Magazine 1 yr. \$1.00  
Home Friend 1 yr.  
Mother's Home Life 1 yr.

Offer No. 103  
AMERICAN FRUIT GROWER 1 yr. ALL  
Pathfinder (weekly) 1 yr. FOUR  
Woman's World 1 yr. ONLY  
Good Stories 1 yr. \$1.25

Offer No. 104  
AMERICAN FRUIT GROWER 1 yr. ALL  
Pictorial Review 1 yr. FOUR  
Household Magazine 1 yr. ONLY  
Illustrated Mechanics 1 yr. \$1.25

Offer No. 105  
AMERICAN FRUIT GROWER 1 yr. ALL  
Pictorial Review 1 yr. FIVE  
Pathfinder (weekly) 1 yr. ONLY  
Good Stories 1 yr. \$1.50  
Illustrated Mechanics 1 yr.

Offer No. 109  
AMERICAN FRUIT GROWER 1 yr. ALL  
Delineator Magazine 1 yr. FOUR  
Pictorial Review 1 yr. ONLY  
Household Magazine 1 yr. \$2.00

**AMERICAN FRUIT GROWER  
for One (1) Year and Your  
Choice of Any Four of  
the Following Magazines for  
ONLY \$1.00**

### Check Four

- ( ) American Poultry Journal 1 yr.  
( ) Cloverleaf American Review 1 yr.  
( ) Everybody's Poultry Magazine 1 yr.  
( ) Gentlewoman Magazine 1 yr.  
( ) Rhode Island Red Journal 1 yr.  
( ) Illustrated Mechanics 1 yr.  
( ) Plymouth Rock Monthly 1 yr.  
( ) Mother's Home Life 1 yr.  
( ) Good Stories 1 yr.  
( ) Home Circle 1 yr.  
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AMERICAN FRUIT GROWER, 1370 Ontario St.,  
Cleveland, Ohio.

Enclosed find \$..... for which please send me  
the magazines marked with an X.

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## CALENDAR OF COMING FRUIT MEETINGS AND EXHIBITS

Dec. 3-5—Missouri Valley Apple Exposition, sponsored by Missouri River Apple Growers, St. Joseph Chamber of Commerce, and horticultural societies of Missouri, Kansas, Nebraska and Iowa, St. Joseph, Mo.—W. R. Martin, Jr., Sec'y, Mo. Hort. Society, Columbia.

Dec. 3-5—Michigan State Horticultural Society annual meeting, apple show and exhibits, Civic Auditorium, Grand Rapids. H. D. Hootman, Sec'y, East Lansing.

Dec. 3-5—New Jersey State Horticultural Society annual meeting, Haddon Hall, Atlantic City.—Arthur J. Farley, Sec'y, New Brunswick.

Dec. 5-6—Kentucky State Horticultural Society 80th annual meeting, with College of Agriculture co-operating, Seelbach Hotel, Louisville.—W. W. Magill, Field Agent in Horticulture, College of Agriculture, Lexington.

Dec. 9-11—Washington State Horticultural Assn. meeting, Wenatchee.—C. L. Vincent, Sec'y, Pullman.

Dec. 10-12—Virginia State Horticultural Society 40th annual meeting and exhibit, Hotel Roanoke, Roanoke.—W. S. Campbell, Sec'y, Staunton.

Dec. 10-13—American Pomological Society 51st convention, in joint session with Connecticut Pomological Society and in co-operation with New England and New York Horticultural Societies, Hartford Armory, Hartford, Conn.—H. L. Lantz, Sec'y, Ames, Iowa.

Dec. 11-13—Illinois State Horticultural Society annual meeting and exhibits, State Armory, Decatur.—Joe B. Hale, Sec'y, Salem.

Dec. 13-14—Montana Horticultural Society, Polson.—Geo. L. Knight, Sec'y, Missoula.

Dec. 18-20—Peninsula Horticultural Society meeting, fruit and commercial exhibits, Bridgeville, Del.—J. F. Adams, Sec'y, Box 425, Newark, Del.

Jan. 7-9—Maryland State Horticultural Society 38th annual meeting, Hotel Alexander, Hagerstown.—A. F. Vierheller, Sec'y, College Park.

Jan. 7-9—Nebraska State Horticultural Society winter meeting, College of Agriculture, Lincoln.—E. H. Hoppert, Sec'y, Lincoln.

Jan. 8-10—Massachusetts Fruit Growers' Assn. annual meeting, Memorial Auditorium, Worcester.—Wm. R. Cole, Sec'y, Amherst.

Jan. 14-17—New York State Horticultural Society 81st annual meeting and commercial exhibit, Rochester.—Roy P. McPherson, Sec'y, LeRoy.

Jan. 15-16—South Dakota State Horticultural Society winter meeting, Aberdeen.—W. A. Simmons, Sec'y, Court House, Sioux Falls.

Jan. 16—Vermont State Horticultural Society meeting in co-operation with Union Agricultural Society, Burlington.—M. B. Cummings, Sec'y, Burlington.

Jan. 20-21—Pennsylvania State Horticultural Assn. winter meeting, in conjunc-

tion with Pennsylvania Farm Show, Harrisburg.—R. H. Sudds, Sec'y, State College.

Jan. 21-23—Indiana Horticultural Society meeting and orchard supply exhibit, Manufacturer's Bldg., State Fair Grounds, Indianapolis.—Everett Wright, Sec'y, Lafayette.

Jan. 27-Feb. 1—Ohio State Horticultural Society annual meeting, Columbus, during Farmers' Week.—F. H. Beach, Sec'y, Columbus.

Jan. 29-31—New York State Horticultural Society Eastern Meeting and commercial exhibit, Kingston.—Roy P. McPherson, Sec'y, LeRoy.

## Make Early Plans for Your Spray Program

By W. A. LUCE

THE fruit grower's battle to control orchard pests with insecticides and at the same time avoid trouble in meeting the residue requirements has become acute. Lead arsenate still remains the best single insecticide for the control of orchard pests. It has remained so for the past 20 years at least, even though many attempts have been made, especially in the past five years, to find a suitable substitute.

If the fruit grower is to stay in business, he must control his orchard pests by using materials that are known to be safe and reliable. He should not experiment with new materials until they have been thoroughly tried out by investigators. When any pest control problem appears hopeless with present methods and materials, then the grower is in the wrong location or has been following incorrect advice in applying his sprays.

As far as possible the individual spray program should be planned well in advance of the beginning of the season. Such factors as past record of the orchard, present hold-over of pests, surrounding orchard infestation and the available spraying equipment should be considered when outlining the spray program. When a satisfactory schedule has been approved, the grower should make every effort to carry out the program. Of course, summer weather conditions often alter the spray schedule at some time during the season. However, we are often too willing to cut down our program of spraying for economy's sake and at the end of the season realize the mistake.

Many times a spray schedule is started that proves too light for the infestation. To overcome damage, a change in the spray program often complicates the residue removal plan. It has been found that starting the early sprays with lead arsenate alone is a bad practice, especially if oil sprays are possible later in the season. A heavily spotted or blotched condition of the spray material always complicates removal, so it is essential that the first sprays be applied as a smooth, even coverage.

As stated above, the spray schedule should be planned well in advance of the growing season and as near as possible carried on to completion without changes or omissions. This program will offset the necessity of late season sprays. When codling moth is the main pest to combat, a well-planned spray schedule will do much to eliminate it in the first brood period, thus avoiding late spray applications that are difficult to remove.

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## STATE HORTICULTURAL NEWS

(Continued from page 11)

fruits and thus shorten the storage life.

Dr. E. L. Overholser, head of the Horticultural Department of Washington State College, told the New Hampshire fruit growers that nitrogen was the only fertilizer which had proved its worth in Washington. He stated that nitrogen fertilization is essential since it boosts yields, increases the size of the fruit, improves the set, lessens the number of June drops and increases the thickness and terminal growth of the twigs. Poor color, he says, is the principal drawback to its use, and in Washington the fruit attains highest color on plots with no fertilizer.

Manager of New England's largest-bearing orchard is the job of Charles P. Hayward who operates the 700-acre orchard at Bennington, Vt. The crop amounted to 76,000 bushels in 1933, 42,000 in 1934 and 80,000 this year. He continued to tell of how the fruit is handled only by workers and no mechanical devices are used. The output is graded by hand. The spraying equipment is composed of six sprayers, each with two leads and multiple nozzles. The sprayers are filled from large supply tanks with four-inch filler pipes in one and one-half to three minutes. When the rigs are working a long distance from the tanks, they are filled with water from tank trucks.

According to J. M. Hamilton, associate in research at the New York Agricultural Experiment Station, no one spray may be depended upon to control apple scab. He stated that as far as pre-blossom sprays are concerned two have given good results. One was the late delayed-dormant or early closed-cluster and the other varied from the time clusters are separating to full pink. Continuing, he said that, commercially, the pink, calyx, 10-day and mid-June codling moth sprays proved to be the most important. He emphasized that successful spraying for scab control depends on correct timing or frequency of application, thoroughness and the use of proper materials.

### Indiana Fruit Notes

ADVANCE indications point toward one of the biggest attendance turnouts for the annual convention on January 21-23, as well as one of the best educational and orchard supply exhibit meetings ever held by the Indiana Horticultural Society. All orchard supply companies who desire booth space but have not been contacted through some error are urged to get any desired information from the secretary at Lafayette.

There were still several apples in common storage during the latter part of November and practically all available cold storage space was filled in all parts of the state, according to authentic reports and observations.

Quite a number of growers were showing definite interest in the finance program of the National Apple Institute, as it was generally agreed that the time was at hand when effort and money expended for publicity leading to increased apple consumption would represent a worth while investment.

L. V. Doud of Denver was the winner of the Indiana Horticultural Society silver loving cup offered for sweepstakes in the commercial class at the Purdue Student Horticultural Show. Several other commercial growers made entries at the show and shared in the prizes. Good shows were also held at Muncie, Goshen, Evansville, Elkhart and Aurora.

The secretary of the Indiana Horticultural Society is making a special effort to

get all possible interest and financial backing from growers in support of the National Apple Institute program for increased consumption of apples. His time will be somewhat limited, however, as he is spending half time on the extension duties for fruits in Indiana during the absence of Monroe McCown, who is doing residence study on his Ph.D. degree at Ohio State University during the winter.

EVERETT WRIGHT, Sec'y,  
Lafayette.

### New Jersey Notes

MORE than 8,000 persons visited the fifth annual Sussex County apple show at the Administration Building at High Point State Park. The apple show, which closed October 14, was directed by Francis W. Morrow, county agricultural agent.

S. R. Crissey of Glenwood was the principal winner in the apple contest, receiving 10 awards for 10 entries. Prof. J. Harold Clark, associate pomologist at the State Experiment Station, New Brunswick, judged the apple exhibits, in which there were 11 exhibitors with numerous entries.

Due to the rapid changes in modern fruit growing, brought about by commercial demands for new varieties, the introduction of new insect pests and other factors, M. A. Blake, professor of horticulture at the New Jersey College of Agriculture, opened a special 12-week short course in fruit growing on October 28 in order to give special training for meeting these changes.

### AMERICAN POMOLOGY

(Continued from page 8)

have proved themselves valuable and able to compete on the markets with older and better known sorts. Not only is there great activity in the apple kingdom, but also in the peach, pear, plum, cherry and small fruit kingdoms many new varieties are coming in for recognition, some of which have already gained such recognition as will make them in great demand for planting.

The editor of this page wants some cooperation along the line of news gathering where it concerns experiences or observations with new varieties.

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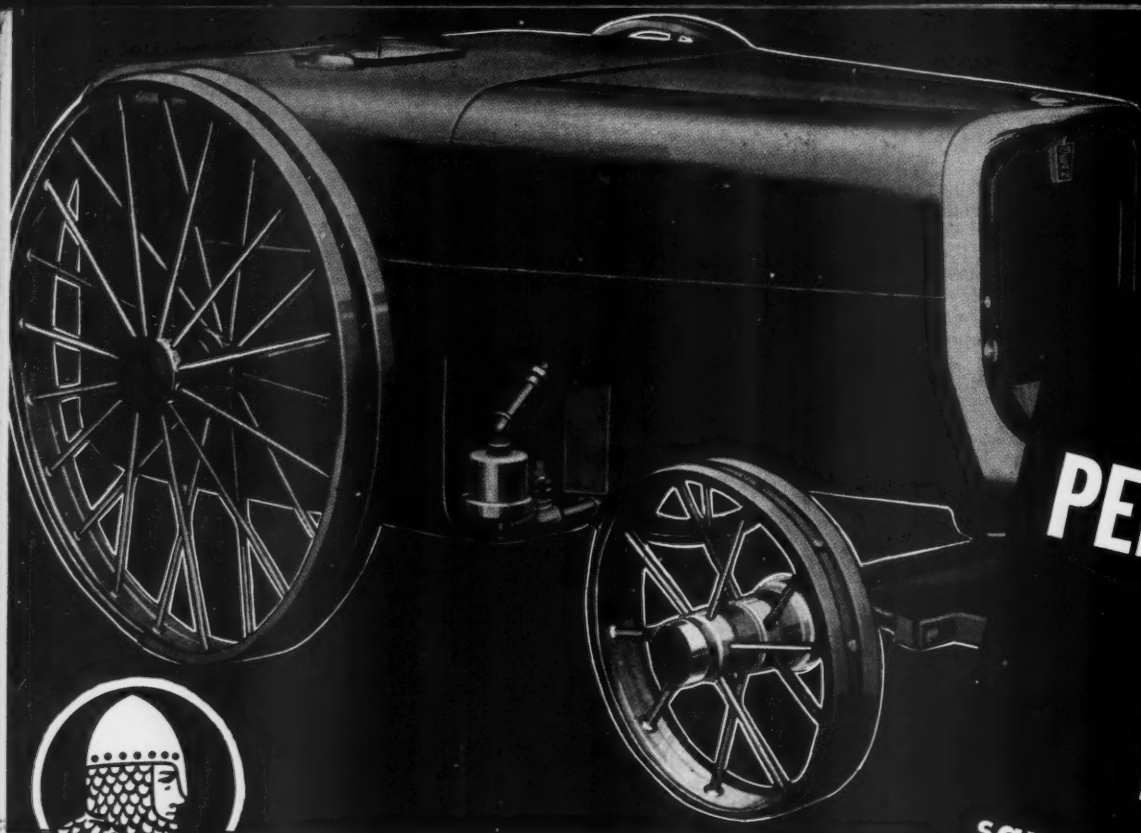
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## POLLINATION

Featured at Annual Meeting of  
Northern Nut Growers

THE pollination of nut trees is a subject that has received very little attention from research workers in horticulture. It has been apparent to many observers, however, that a pollination problem exists and that there is need for more definite information concerning the pollination requirements of the northern nut trees. Hence, the observations of C. A. Reed, of the U. S. D. A., reported at the annual meeting of the Northern Nut Growers' Association in Rockport, Ind., are of more than average interest. Mr. Reed's investigations were chiefly with the northern pecans and the work was done in the pecan orchard of J. F. Wilkinson, of Rockport, and in pecan plantings near Washington, D. C., over a period of four years.

It was shown that all the important northern pecan varieties were dichogamous, that is, the male and female flowers mature at different times, so that self-pollination is not possible, or is incomplete. Some varieties are protandrous, or shed their pollen before the pistils are receptive, while other sorts are protogynous, and do not shed their pollen until the pistils have matured and dried up. It is evident, then, that the planter of the northern pecan varieties must know the behavior of each variety he plants in order to arrange for proper pollination of his trees.

The Major variety, which sheds most of its pollen before the pistillate flowers are ready gave an increased yield when pollen of Niblack, a late bloomer, was applied after a heavy rain had washed away most of the pollen in the orchard. Greenriver is one of the least dichogamous of pecan varieties. Posey, like Greenriver, has a good overlapping period of pollen shedding and pistil receptivity. The Kentucky variety, less valuable for its nuts than the others, was found to be very useful in supplying pollen at the middle of the normal season of bloom for other sorts. This variety often sheds its pollen during periods of unfavorable weather due to combinations of temperature, rain and wind.

With black walnuts, Thomas, Stabler and Ohio were found to overlap sufficiently in the blooming of the male and female flowers to permit satisfactory self-pollination.

The McAllister hican, notoriously unproductive, and rarely developing nuts with plump kernels, bears only a few weak catkins, sheds its pollen and drops these catkins several days before the pistillate flowers become receptive.

Certain varieties of shagbark hickory, butternut, Persian (English) and Japanese walnut have also been found to be definitely dichogamous.

Mr. Reed pointed out that pollination, while important, was only one factor in the production of a nut crop. "The first considerations, in all cases," said Mr. Reed, "are well selected varieties, rich soils, good drainage of both soil and air, ample moisture, adequate space between trees and control over insect pests and diseases. Too often such a matter as pollination is looked upon as being a magical short-cut to full crops."

G. L. SLATE, Sec'y.

Northern Nut Growers' Ass'n.,  
Geneva, N.Y.



Starking, the "Double-Red" Delicious which originated as a limb mutation in a New Jersey orchard and which has become an outstanding bud sport as the first of these new introductions to be placed on the market.

## VALUABLE BUD SPORTS

Their Introduction One of Greatest Advances in  
Modern Fruit Growing

By GLENN THOMAS

ONE of the greatest advances of modern horticulture has been the locating, testing, selecting and introducing to the public, by leading nurserymen, of valuable bud sports. In his booklet on, "The Bud Sport Situation," Dr. M. J. Dorsey, of the University of Illinois, says, "Bud sports are not new. We have a record of a bud sport as early as 1741, but it is now a matter of history that Starking ('Double-Red' Delicious) was the first color sport of any important commercial variety to be 'put on the map' in a National way. With the interest in bud sports thus aroused it was easy for others to follow the lead."

Bud sports may occur as limb, entire tree and individual leaf or fruit variants and are not limited to color differences, but may show variance in size of fruit, tree hardiness, blooming period and many other characteristics. The sports showing additional color, however, are of most importance to the grower, as this factor will aid in the marketing of the fruit.

Since the fruit grower is primarily interested in fruit that will bring him a greater return, a consideration of the new red bud sports should be in order.

As a limb mutation in a New Jersey orchard, the Starking ("Double-Red" Delicious) came into being. This

apple is a true Delicious in every respect, except that it takes on a deep red early in the season so that it can be picked at the proper time for highest quality and late keeping in storage.

A new variety, Jonared ("Double-Red" Jonathan), is just now being introduced and promises to increase the profits of Jonathan growers, especially in those sections where it is difficult to get good color. This sport also colors early in the season so that the fruits can be picked at the right time without having to wait until they are over-ripe to get sufficient color.

On a Stayman Winesap tree in the Shenandoah Valley of Virginia, the Staymared ("Double-Red" Stayman) sport first appeared. The color is deep, dark-red and otherwise the fruit is similar to the Stayman Winesap.

Additional "Double-Red" sports are available for the Baldwin, Duchess, Rome Beauty, Northern Spy and Willow Twig varieties. Another sport is the "Triple-Red" Gravenstein.

In the experimental orchards of leading nurserymen are other bud sports which are now under observation and tests and which will be added to the lists for the benefit of growers as soon as they prove worthy of introduction. The red bud sports present the answer to the question of a better selling fruit for the variety that specific markets demand.

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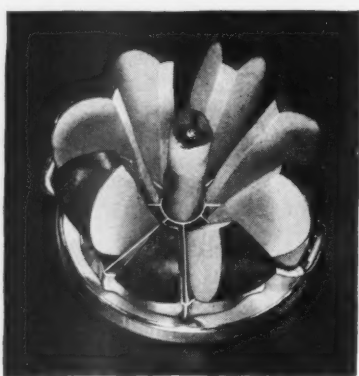
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# STRAWBERRIES

## HIGH FERTILITY AIDS CONTROL OF ROOT ROT

(Continued from page 7)

as the "brown stele," or the "red stele" type, and is distinguished from the "black root" type by the fact that a diseased root may appear normal until the outer layer is scraped away, when it is seen that the central woody strand is brown or red in color and easily slips from the outer layer. This trouble is caused, apparently, by fungi different from the group causing the "black root" type. Thus the two types are separate as to root symptoms and causal organism, but similar as to effect on the plant.

Much work has been done in attempting to find the causal organism of root rot. There has been some variation in the results of these studies, depending largely upon the area where the work was done. In the United States, Canada and England, taken together, nine separate and distinct fungi have been found associated with root rot of strawberry and have been shown to be able to cause the disease. Another organism, making a total of ten, has been shown to be associated with the condition. It cannot be artificially grown, however, and that it causes the disease cannot be definitely proved. Beside all of these, it is known that at least two more fungi commonly found in the soil cause a crown disease which has much the same effect on the plant, but does not show the described root symptoms.

Most of these organisms are capable of living on dead material in the soil, and others have long-lived spore forms. Further, many of these organisms have a wide distribution. It has also been shown by certain workers that there is a fungus normally associated with apparently healthy strawberry roots and it has been thought that this association was necessary for the growth of the strawberry plant. More recently some have come to the conclusion that under certain conditions, not understood, the fungus may become harmful to the roots and be a primary cause of root rot. It seems only logical, therefore, in view of the large number of fungi known to be capable of producing the disease, to suppose that some condition of the plant itself, possibly related to its nutrition, or other environmental factors, determines whether or not these fungi will be able to penetrate and bring about the disease called root rot.

Frequently it has been observed that the disease first becomes evident in wet spots in a field where plants are retarded in growth from early spring. From these spots it often spreads to plants growing on higher ground. First infections have also been found on relatively high, well-drained soil. A series of soil samples taken from areas where the disease was present and others from disease-free areas have shown that in general diseased plants are more frequently encountered on soils low in available plant nutrients. These studies, while yielding some correlation in this respect, have not yet been carried to a point where one might draw definite conclusions.

The question of using new soil for plantings of strawberries has frequently been suggested. During the past year the writer has visited badly infected plantings located on newly cleared land and has also visited successful plantings on new land. The cases where the disease has been bad on new land usually were associated with unleveled fields and inadequate drainage. It must be understood, however, that some of the organisms found attacking strawberry roots are quite abundant on new land. This is especially true perhaps of lands on the Pacific Coast, which before clearing supported heavy growths of bracken ferns and hazel bushes.

It has been the writer's impression, gathered from noting conditions on the coastal plain of Maryland, that very light soils and poorly drained areas have suffered most from root rots. More injury has been seen on poor sandy soil than on loam soils, and a survey in which soil treatment was considered indicated that growers who maintained a relatively high soil fertility were less troubled than were those who paid less attention to this factor. That maintaining a high degree of fertility is important was well brought out in one field where careful study of the plants showed that small root rot lesions were present on a high percentage of the plants, yet the field produced that season the highest yield per acre of any in that area, and is well on the way toward setting a record in the second year. The grower was well experienced in berry production and maintained a high state of fertility and good tilth

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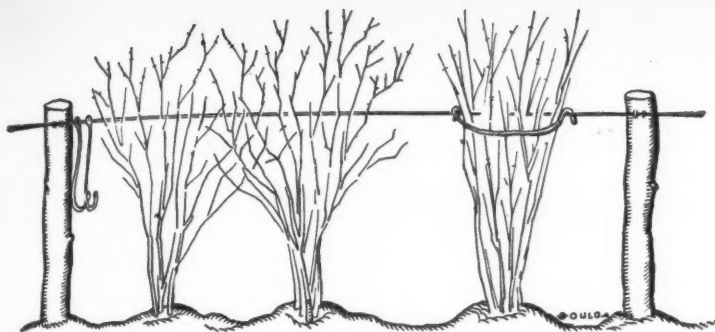
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## HOW TO ANCHOR BERRY BUSHES

By A. G. MEATING

MUCH of the labor of anchoring berry bushes and of laying them down in the fall can be overcome by the simple device worked out by berry growers around New London, Wis. The plan requires only half as much wire as a two-wire system, and it does away with the necessity for braces to hold the wires.

Stretch a single wire along the row of berry bushes. Then cut as many 16-inch lengths of wire as there are bushes. Make an eyelet to loop one end of the short wire over the line for the row. Bend this short wire slightly

and offset the free end. When it is time to tie up the bushes to keep them erect and protect them from wind lashing, simply slide one of the short hanging wires up to each plant, draw it around the plants, and loop the offset end over the line wire. The plants are in place for the season. In the fall, release the end from the wire and the plants are free for laying down.

The scheme is simple, and once the short wires are attached to the line wire, they are ready for use year after year.

## HIGH FERTILITY AIDS CONTROL OF STRAWBERRY ROOT ROT

(Continued from preceding page)

in his field. In addition, he used a hay mulch during the winter.

Mulching the strawberry field has been recommended recently as an aid in controlling root troubles. It cannot be denied that mulching is a commendable undertaking. In the northern areas winter injury and root rot may be associated and mulching has been shown to be valuable. On sandy land, mulching will aid in preventing erosion of the soil from the roots. The use of a legume mulch undoubtedly increases soil fertility. To mulch an extensive area, however, is expensive.

The writer has attempted to find whether root rot is more serious when strawberries follow certain crops in rotation, but has found little correlation in Maryland, nor has there been any definite correlation between the presence of the disease and certain varieties. Root rot has been found in varying amounts among all the principal varieties observed. The vigorous new varieties, Dorsett and Fairfax, have shown, however, less susceptibility to the disease than some of the older varieties.

It is suggested that growers exercise care in selecting plants for setting out and set only those with normal, healthy-appearing roots which have a good fibrous development and

show no dark sunken spots. It is probably inadvisable to trim back the roots before setting the plants. Growers will profit by preparing the soil well and caring well for the plants throughout the life of the planting. Unusually dense beds of fruiting plants cannot be recommended.

The writer has seen but two practices which have been effective in stopping the spread of the disease in established beds. One of these consisted of removing the soil to a depth of a foot and over an area at least a foot beyond the infected plants and carting it away. This method is too laborious to be used. The second consisted of digging a narrow trench about a foot deep around the outer boundary of the infection, the idea being to stop spread by root contact. This method, too, is laborious and only partially effective. It is hoped that more generally applicable control methods or, better, prevention methods will result from the many studies now in progress.

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# PEARS

## CERTAIN PHASES OF THEIR CULTURE ON THE PACIFIC COAST

(Continued from page 6)

edly a hybrid between the European and Japanese pears. Le Conte and Garber also have this parentage. Japanese strains tend to resist the bacterial disease pear blight (*Bacillus amylovorus*), undoubtedly the greatest single factor limiting production.

Until about 20 years ago pears were almost universally propagated on the French (*P. communis*) root, which, though it suckers badly and is susceptible to pear blight and root aphid, is adaptable to a wide range of soil conditions. Because of its partial resistance to pear blight and root aphid, the Japanese root (*P. serotina*) was widely used on the Pacific Coast from about 1915 to 1925. After 20 years' experience, western pear growers have concluded, as did South African orchardists 30 or more years ago, that this root is unsatisfactory. It will not tolerate soils with a high moisture or lime content. Although trees on this root make an excellent growth for a few years, later development is often poor. In addition, many trees produce "Black-end" or "Hard-end" fruits. The calyx end is black and hard and the fruit is ruined for fresh, cannery or dry consumption. Apparently there is no causal organism, and the disease has never been reported from trees on quince root and only infrequently on French root. The quince root, "double-worked," using the Hardy as the intermediate variety, is frequently used in California with success. This combination produces a dwarf tree bearing fruit of the best quality. Three oriental roots (*P. betulaefolia*, *P. ussuriensis*, *P. calleryana*) have been tried in a limited way as rootstocks, but being subject to Black-end, are not seriously considered. The first is tolerant of alkali soils, the latter two somewhat resistant to blight.

Pears are grown successfully under many conditions. Warm, dry summers apparently favor high quality, especially in the case of the Bartlett. Winters should be cold enough to definitely break the "rest period." Pears bloom later than almonds, Japanese plums, apricots, and peaches, and so may be planted in places where the latter fruits would not be successful. Frosty locations should be avoided as it is questionable whether or not this fruit can economically be raised where artificial heating is nec-

essary. Windy locations should be avoided because the pear fruit scars easily, even if not blown from the tree.

In most locations on the Pacific Coast it is deemed desirable to interplant pear varieties in order to secure cross pollination facilities which apparently are necessary to secure satisfactory crops. The Bartlett variety raised at lower elevations in the valleys of California is an apparent exception.

Since pears ripen to better quality off the tree, they are not picked tree ripe. This is true whether they are to be consumed fresh, canned or dried. Experience has shown that a pressure test is the most satisfactory method of determining the proper maturity for harvest. This pressure varies with the variety and to a less extent with the district.

The Pacific Coast pears for fresh consumption are shipped in a standard bushel box weighing when packed and lidded, from 50 to 54 pounds. Each pear is wrapped and the box is lined and padded to prevent bruises. The number of pears in each box is marked on the end. Medium to small sizes generally bring a higher return than the "Jumbo" sizes. Bartlett pears raised under high summer temperature conditions tend to carry better than those grown under milder conditions.

Pears are sold to the cannery at a certain price per ton, with a minimum diameter specified. Various qualifications are made as to what constitutes a first-class cannery pear. The length-to-diameter ratio is considered important: In California the minimum ratio is 1.125; in Washington 1.33. The Bartlett is the only variety canned commercially in the West. The canned output is about equally divided between California and her two neighboring states to the north.

For drying the Bartlett variety is used almost exclusively. The fruit is ripened, washed, halved, stem and calyx removed, and then exposed on trays to the fumes of burning sulphur from six to 24 hours. After removal from the sulphur house, trays of cut fruit are placed in the sun for a day or so and then stacked and the drying slowly completed. It takes about five pounds of fresh pears to make one pound of the dry product.

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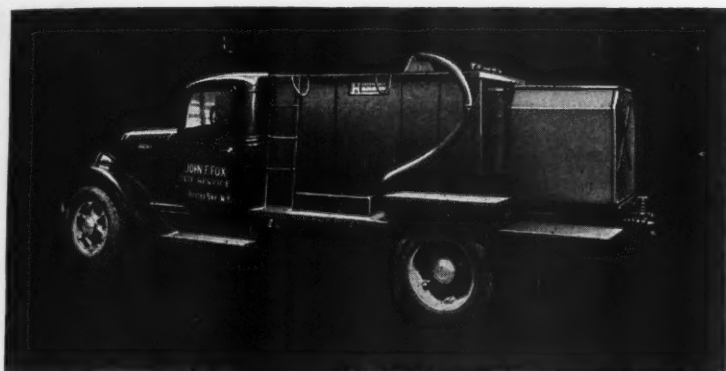
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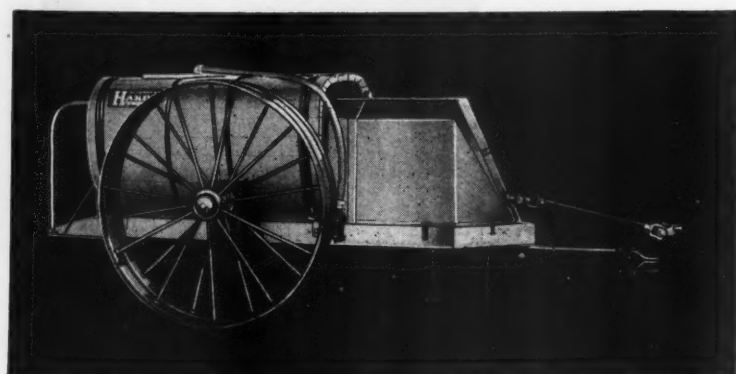




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